

## OPTICAL PHENOMENA.

*Solar Halos.*—But few were reported in comparison with previous months. None with any remarkable phenomena attending were reported.

*Lunar Halos.*—But few lunar halos were reported, the largest number, 6, from Dubuque, Iowa. That of the 24th was observed at several stations in Iowa and Illinois, but no particular phenomena in connection therewith was reported.

## MISCELLANEOUS PHENOMENA.

*Lightning* at Visalia, Cal., 18th.

*Sand-storms* at Coleman, Texas, 4th and Visalia, Cal., 26th.

*Grasshoppers.*—Air full of them, moving south on 31st at Holton, Kansas. Shasta valley overrun with them early in month; they devoured everything green, and crops suffered much from them. Martis valley, Truckee river, vegetation completely destroyed by them, requiring cattle range to be abandoned for the season.

*Mirage.*—Henrietta, Texas, 3rd; Olivet, Dak., 7th, 24th and 31st; Breckenridge, Minn., 9th, 22nd; Pembina, Dak., 29th.

*Prairie Fires.*—Ft. Gibson, Ind. Ty., 2nd, 14th; Burlington, Vt., 2nd, 5th to 10th, 12th to 14th; Boise City, Idaho, 4th to 9th, 13th to 17th; Near Salt Lake City, 8th to 20th, 27th; Creswell, Kan., 8th, 9th, 23rd, 31st; Port Huron, 27th; 1st, southeast of San Jose, Cal.; 1st to 7th, Yuba river valley, Cal.; 3rd, Stanislaus co., Cal.; 4th, Santa Clara, co., Cal.; 6th to 20th, near Verdi, Nev., doing much damage; 11th to 23rd, Calaveras Co., Cal., "hundreds of acres of thrifty young timber destroyed."

*Sunsets.*—The characteristics of the sky at sunset, as indicative of fair or foul weather, for the succeeding, twenty-four hours, have been observed at all Signal Corps stations. Reports from 129 stations show 4,892 observations to have been made, of which 34 were reported doubtful; of the remainder 4,858 or 66.6 per cent were followed by the expected weather.

*Meteors.*—Meteors were reported in considerable numbers, being most general from the 9th to the 11th and from 19th to 22d. The largest numbers were reported from Indiana, Maryland, New Jersey and New York. None were reported west of the 100th meridian, except at Georgetown, and San Juan Valley, Col., on the 5th 10th, (on which date they were very numerous in Indiana and Colorado), and 23d, and at Tucson, Ariz., on the 9th.

*Earthquakes.*—On the 10th, 1:15 p. m., very slight at Los Angeles, California. The motion was more perceptible at Santa Monica, about 13 miles distant, and a tidal wave which followed was attributed to it. At San Fernando the shock was quite severely felt. At 12:30 p. m. of the 21st, at Buffalo, New York, a light shock followed by others, from 1:20 to 1:32 p. m., attended in latter case by a rumbling sound. August 21st, in Ontario, at Niagara, St. Catharines, Thorald, Welland, Allanburg, Port Dalhousie and Beausville. It was the most violent at St. Catharines at 2:55 a. m., duration estimated from two to ten seconds; movement was from east to west. At Lockport, N. Y., a shock was felt at 4:30 p. m. (lasting five seconds) with very loud report.

*Sun Spots.*—The following record of observations, made by D. P. Todd, Assistant, has been forwarded by Prof. S. Newcomb, U. S. Navy, Superintendent Nautical Almanac, Washington, D. C.:

DATE— AUGUST, 1879.	No. of new—		Disappeared by solar rotation.		Reappeared by solar rotation.		Total number visible.		REMARKS.
	Groups	Spots.	Groups	Spots.	Groups	Spots.	Groups	Spots.	
10th, 2 p. m...	1	4	0	0	0	0	1	4	Faculae.
10th, 3 p. m...	0	0	0	0	0	0	1	4	
12th, 4 p. m...	1	10	0	0	0	0	2	14	
12th, 5 p. m...	0	0	0	0	0	0	2	14	
14th, 5 p. m...	0	0	1	12	0	0	1	2	Faculae.
16th, 3 p. m...	0	0	1	2	0	0	0	0	
20th, 4 p. m...	1	1	0	0	0	0	1	1	
21st, 5 p. m...	0	0	1	1	0	0	0	0	
24th, 5 p. m...	1	12	0	0	0	0	1	12	Faculae.
27th, 3 p. m...	1	8	0	4	1	8	2	11	
28th, 3 p. m...	0	0	0	1	0	0	2	10	
30th, 6 p. m...	0	0	1	2	0	0	1	3	
31st, 2 p. m...	0	0	0	0	0	0	1	3	The eight spots of the group which re-appeared on the 27th, have coalesced into three spots, one of them quite large.

Faculae were also observed on the 2nd at 2 p. m. and on the 3rd at 3 p. m.; observations were made but no spots observed on the 1st at 2 and 5 p. m., 5th and 6th 3 p. m., 8th at 2 p. m., 18th at 6 p. m. and on the 19th at 4 p. m. Mr. David Trowbridge at Waterburgh, N. Y., reported 1st to 9th, 11th to 13th, 19th to 23rd and 27th, no spots perceptible; 10th, 7:30 a. m. small spot about one-fifth diameter from west margin of disc not visible on the 9th at 3:30 p. m. or on the 11th at 6:30 p. m.; 24th, a group of 2 or more small spots a little east of the center of disc; 28th, a group of 2, one well defined, near eastern margin; 30th, 2 spots; 31st, one spot which was still visible on Sept. 1st. Mr. Wm. Dawson at Spiceland, Ind., reported 1st, 2nd, 4th, 7th to 9th and 17th to 21st, no spots; 10th, 8 spots in one group, one spot about half-way from center to western edge; 11th, 15 spots in two groups—new group of 5 little spots in NW.